

Response to the Written Opinion

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To: The Director of The Japanese Patent Office

1 Application: PCT/JP03/04706

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5 Remarks

(1) The following opinion was presented in the Written Opinion:

Reference 1 discloses the same acryl-silicone copolymer having a hydrolyzable silyl group as with the one claimed in the present application. The acryl-silicone copolymer is used as a surface treatment agent for powder for cosmetics. Further, in Examples 21-24 in Reference 1, hair cosmetics comprising surface treated powder are described. Those cosmetics are literally encompassed in the present claims 1-6, 11, 14-15, 17, 27-28.

The inventions set forth in the other claims of the present application could have been easily made by a skilled person by combining the polymer with conventional components of hair cosmetics and optimizing preparation forms.

Reference 1: WO 2002/100356

(2) The applicant traverses the opinion for the following reasons.

In the hair cosmetics described in Reference 1, the acryl-silicone copolymer having a hydrolyzable silyl group is not substantially contained. As described in Reference 1, page 2, line 9, "the organopolysiloxane is effective to reform surface and block surface activity of powder by forming chemical bonds with powder surface", the acryl-silicone copolymer, specifically the hydrolyzable silyl group, is chemically bonded to powder by heating at 150 °C for 3 hours. Please see Reference 1, page 30, the method of preparing surface treated powder.

Therefore, the hair cosmetics described in Reference 1 do not contain the acryl-silicone copolymer having a hydrolyzable silyl group any longer.

(3) Hair cosmetics cannot be heated at 150 °C for 3 hours after it is applied to the hair.

Further, Reference 1 teaches to incorporate the acryl-silicone copolymer having a hydrolyzable silyl group in such a state that it covers powder. It does not present any motivation for a skilled person to incorporate the polymer itself in a hair cosmetic.

Therefore, no motivation is presented by Reference 1 for a skilled person to incorporate an acryl-silicone copolymer having a hydrolyzable silyl group in a hair cosmetic.

(4) Effects of the invention disclosed in Reference 1 are attained by coating powder with an acryl-silicone polymer having a hydrolyzable silyl group. From these effects, the effects attained by applying the polymer to the hair, i.e., protection of the hair, improvement in smoothness and easiness to comb, and prolonged effects, cannot be anticipated. Please see the present specification, pages 23-25.

Although mechanism is not clarified through which the effects of the present invention are attained, it is considered as follows. In an acryl-silicone copolymer applied to the hair, acryl polymer moieties of the polymer are adsorbed on the hair because of their

higher affinity for the hair and silicone moieties align facing away from the hair. As a result of this, the acryl polymer moieties protect the hair and the outside silicone moieties improve smoothness and easiness to comb. The hydrolyzable silyl group is readily hydrolyzed by water present during hair wash. The hydrolyzed group is bonded to another hydrolyzed group or to some other reactive group to form a durable film which maintains the aforesaid effects such as hair protection effect.

These effects of the present invention cannot be anticipated from the effects attained by incorporating the acryl-silicone polymer bonded to powder by heating the polymer in non-aqueous system such as in toluene.

(4) Therefore, the present invention is novel and has an inventive step over Reference 1.